IN THE CLAIMS

1-6. (Canceled)

7. (Currently amended) A method of formatting a distributed data frame structure comprising:

receiving a plurality of data frames, each data frame comprising a plurality of bytes and a frame alignment signal comprising a pattern of bits;

establishing a plurality of subframe structures, each subframe structure corresponding to one of a plurality of different transmission channels; and

performing a rotating deinterleaving procedure on said plurality of data frames in which:

said frame alignment signal is periodically distributed within each of said plurality of subframe structures by;

assigning a first instance of said frame alignment signal to a reference location in a first one of said plurality of subframe structures to identify a reference position in a first one of said data frames; and

assigning a second instance of said frame alignment signal to said reference location in a second one of said plurality of subframe structures to identify said reference position in a second one of said data frames.

8. (Original) A method according to claim 7, wherein said rotating deinterleaving procedure distributes bytes from each of said plurality of data frames among each of said plurality of subframe structures.

9. (Canceled)

10. (Currently amended) A method according to claim ~~9~~ 7, wherein:

each of said plurality of data frames is represented by *L* bytes; and

said rotating deinterleaving procedure distributes said frame alignment signal such that it occurs every *L* bytes in each of said subframe structures.

11. (Canceled)

12. (Original) A method according to claim 7, wherein each of said plurality of data frames is formatted in accordance with ITU-T Recommendation G.709/Y.1331.

13. (Currently amended) A data communication apparatus comprising:

an input node configured to obtain a plurality of data frames, each comprising a plurality of bytes and a frame alignment signal comprising a pattern of bits;; and

a rotating deinterleaver configured to reformat said data frames into a plurality of subframe structures, each corresponding to one of a plurality of different transmission channels;

means in said rotating deinterleaver for performing a rotating deinterleaving procedure on said plurality of data frames in which said frame alignment signal is periodically distributed within each of said plurality of subframe structures by;

assigning a first instance of said frame alignment signal to a reference location in a first one of said plurality of subframe structures to identify a reference position in a first one of said data frames; and

assigning a second instance of said frame alignment signal to said reference location in a second one of said plurality of subframe structures to identify said reference position in a second one of said data frames.

14. (Original) A data communication apparatus according to claim 13, further comprising a plurality of serializers coupled to said rotating deinterleaver, each of said plurality of serializers being configured to generate serial data representing one of said plurality of subframe structures.

15. (Original) A data communication apparatus according to claim 13, further comprising a framer configured to align said plurality of data frames.

16. (Currently amended) A data communication method comprising:

receiving a plurality of data frames at a first data rate, each comprising a plurality of bytes and a frame alignment signal comprising a pattern of bits;

performing a rotating deinterleaving procedure to distribute data from said plurality of data frames into a plurality of subframe structures, in which said frame alignment signal is periodically distributed within each of said plurality of subframe structures by:

assigning a first instance of said frame alignment signal to a reference location in a first one of said plurality of subframe structures to identify a reference position in a first one of said data frames; and

assigning a second instance of said frame alignment signal to said reference location in a second one of said plurality of subframe structures to identify said reference position in a second one of said data frames; and

transmitting each of said plurality of subframe structures over one of a plurality of channels, each of said plurality of subframe structures being transmitted at a second data rate less than said first data rate.

17. (Original) A method according to claim 16, wherein each data frame is formatted in accordance with ITU-T Recommendation G.709/Y.1331.

18. (Canceled)

19. (Original) A method according to claim 16, further comprising:

receiving said plurality of subframe structures on said plurality of channels;

framing each of said plurality of subframe structures to obtain aligned subframe structures; and

performing a rotating interleaving procedure on said aligned subframe structures to recreate said plurality of data frames.

20. (Original) A method according to claim 19, further comprising de-skewing said aligned subframe structures.

21. (Original) A method according to claim 19, wherein said rotating interleaving procedure reverses the effect of said rotating deinterleaving procedure.

22. (Original) A method according to claim 19, further comprising transmitting recreated data frames over a single channel at said first data rate.

23. (Currently amended) A data communication apparatus comprising:

at least one input node configured to obtain a plurality of subframe structures from a plurality of channels, each of said plurality of subframe structures comprising a plurality of bytes and a frame alignment signal which is periodically distributed within each subframe structure by:

assigning a first instance of said frame alignment signal to a reference location in a first one of said plurality of subframe structures to identify a reference position in a first one of said data frames; and

assigning a second instance of said frame alignment signal to said reference location in a second one of said plurality of subframe structures to identify said reference position in a second one of said data frames; and

a rotating interleaver configured to distribute data from said plurality of subframe structures into a data frame.

24. (Original) An apparatus according to claim 23, further comprising a plurality of framers configured to frame said plurality of subframe structures to obtain aligned subframe structures.

25. (Original) An apparatus according to claim 24, further comprising a de-skewing circuit configured to de-skew said aligned subframe structures, wherein said rotating interleaver is coupled to receive de-skewed data from said de-skewing circuit.

26. (Currently amended) A data communication method comprising:

receiving, at a first data rate, a plurality of subframe structures from a plurality of channels, each of said plurality of subframe structures comprising a plurality of bytes and a frame alignment signal which is periodically distributed within each subframe structure by:

assigning a first instance of said frame alignment signal to a reference location in a first one of said plurality of subframe structures to identify a reference position in a first one of said data frames; and

assigning a second instance of said frame alignment signal to said reference location in a second one of said plurality of subframe structures to identify said reference position in a second one of said data frames; and

performing a rotating interleaving procedure to distribute data from said plurality of subframe structures into a data frame formatted for transmission at a second data rate higher than said first data rate.

27. (Original) A method according to claim 26, wherein said data frame is formatted in accordance with ITU-T Recommendation G.709/Y.1331.

28. (Original) A method according to claim 26, further comprising framing each of said plurality of subframe structures to obtain aligned subframe structures.

29. (Original) A method according to claim 28, further comprising de-skewing said aligned subframe structures.

30. (Original) A method according to claim 26, further comprising transmitting recreated data frames over a single channel at said second data rate.